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10/520,123

09/28/2005

Michael Stepputat

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EXAMINER

NUR, ABDULLAHI

ART UNIT

PAPER NUMBER

2877

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                               |                                  |  |
|------------------------------|-------------------------------|----------------------------------|--|
| <b>Office Action Summary</b> | Application No.<br>10/520,123 | Applicant(s)<br>STEPPUTAT ET AL. |  |
|                              | Examiner<br>Abdullahi Nur     | Art Unit<br>2877                 |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 28 September 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 9-11 and 14-17 is/are rejected.
- 7) ☒ Claim(s) 7, 8, 12 and 13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some    \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>5/3/2006</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Hnilica et al. (US patent # 5,798,832) [hereinafter Hnilica].

As to claims 1 and 17, Hnilica teaches a method for carrying out emission spectrometry, in particular laser emission spectrometry, in which a pulsed laser beam 48 is focussed automatically (automatically, here, is not given a patentable weight for it is indefinite and therefore further consideration is not given) on a workpiece (column 8, lines 3-4) to generate a laser-induced plasma 46, in which the radiation emitted by the plasma is detected and elemental analysis is performed with the detected radiation spectrum (column 6, lines 29-31), wherein prior to generating the plasma, in addition to determining the distance d of said auto-focussing optic from the surface of said workpiece (column 6, lines 5-6), additional geometry parameters P1, P2 . . . PN of a potential measuring location on said workpiece surface are determined, and an elemental analysis is performed for only the potential measuring locations where at least one of said additional parameters lies within a predefined tolerance range [T1 . . . T2] (column 6, lines 16-28).

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 2,3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hnilica in view of Applicant's admitted prior art.

As to claims 2 and 3, Hnilica teaches all as applied to claim 1, except for the angle of incline of said workpiece surface to the axis of said laser beam present at the potential measuring location is determined as a geometric parameter. Applicant's admitted prior art teaches the angle of incline of said workpiece surface to the axis of said laser beam present at the potential measuring location is determined as a geometric parameter (Fig.1; prior art).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the angle of incline  $\alpha$  as a geometric parameter in order to locate a coordinate position in a plane relative to (z) normal axis.

As to claim 6, Hnilica teaches all as applied to claim 1, except for the predefined geometric parameters correspond to those geometric parameters of which a calibration curve had been plotted. Applicant's admitted prior art teaches geometric parameters of which a calibration curve had been plotted (description of the invention, paragraph 4 of the disclosure).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to plot calibration curve of the predefined geometric parameters with measured parameters in order to determine the deviation between parameters.

As to claim 9, Hnilica teaches all as applied to claim 1, and in addition Hnilica teaches a method wherein scrap aluminum or scrap electric parts are measured (column 1, line 9).

4. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hnilica in view of applicant's admitted prior art, in further view of well known prior art.

As to claims 4 and 5, Hnilica in view of Applicant's admitted prior art teaches all as applied to claim 1, except for a profile of at least part of said workpiece surface is determined by means of a triangulation process and from said surface profile said additional geometric parameters are calculated. It is well known in the art to find coordinates and distance to a point in a plane by triangulation.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use trigonometric triangulation process in order to find coordinates and distance to a point on a plane, using the laws of sines.

Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hnilica in view Carlhoff et al. (US Patent # 5,702,550) [hereinafter Carlhoff].

As to claims 7 and 8, Hnilica teaches all as applied to claim 1, except for the moving object; a method wherein parts moving on a belt are measured. Carlhoff teaches said laser beam that is deflected transverse to the direction in which said test object is moving; a method wherein parts moving on a belt are measured (column 5, lines 41-52).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to transverse laser beam to the direction of moving object in order to generate a plasma with a radiation characteristic of the elements or molecules of the moving object.

As to claims 10,11,14,15 and 16, Hnilica teaches all as applied to claim 1, and in addition teaches a method for carrying out emission spectrometry, in particular for carrying out laser emission spectrometry in which, to generate a laser-induced plasma, a pulsed laser beam is automatically focussed on a workpiece, in which the radiation emitted by the plasma is detected and elemental analysis is performed using the detected radiation spectrum, wherein laser beam impingement occurs with an adjustable pulse interval (column 5, line 55 to column 6, line 15; abstract).

***Allowable Subject Matter***

Claims 12 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance: as to claim 12, the prior art of record, taken alone or in combination, fails to disclose or render obvious a method wherein if a detection device detects a test object, a shorter pulse interval is selected than if no test object is detected in combination with the rest of the limitations of the claim.

As to claim 13, the prior art of record, taken alone or in combination, fails to disclose or render obvious a method wherein if said detection device detects no test object a pump pulse is released but no laser pulse is released in combination with the rest of the limitations of the claim.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abdullahi Nur whose telephone number is (571) 270-1298. The examiner can normally be reached on Monday - Friday, 8 a.m. to 5p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Toatley can be reached on 571-272-2059. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2877

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Abdullahi Nur *AN*

Patent Examiner

AU 2877



LAYLA G. LAUCHMAN  
PRIMARY EXAMINER